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REASON & REVELATION

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SEXUAL FEELINGS & OBJECTIVE MORALITY

The
Miller-Urey
Experiment

Is the **BIBLE**
FROM GOD?—
AP MATERIAL
FOR ALL AGES



Article In Brief... 

Most people seem to miss the logical rationale upon which sexual lifestyles are based. If there is no God, then there are no objective standards of any kind for sexual activity. We are free to allow our "evolved, animal-like" instincts and passions to run rampant in thought and deed—without a logically objective restraint. But, if God exists and the Bible is His Word, we are subject to a strict sexual moral code authored by the Creator for His glory and for our eternal benefit. We may choose to do as we wish whenever we want with whomever we decide in defiance of God's Will for a few years on Earth (and suffer the eternal consequences of such unrepentant choices), or we may choose to "flee sexual immorality" and "glorify God" with our bodies, recognizing that we are called to a higher calling than the world's way of carnal chaos.

MORALITY is defined as "a doctrine or system of moral conduct."¹ By "moral" conduct, we mean "conforming to a standard of right behavior."² If God does not exist, then there can be no objective³ standard for "right behavior." As atheistic philosopher Jean-Paul Sartre summarized: "Everything is indeed permitted if God does not exist.... He [man] cannot find anything to depend upon either within or outside himself."⁴ If there is no God, Sartre recognized that we have no "values or commands that could legitimise our behaviour. Thus we have neither behind us, nor before us in a luminous realm of values, any

means of justification or excuse."⁵ Atheistic evolutionary biologist William Provine likewise admitted that if organic evolution is true, then one logically can conclude, "No inherent moral or ethical laws exist, nor are there absolute guiding principles for human society."⁶ In short, if humanity evolved from animals, then there can be nothing objectively immoral about acting like animals, including sexually acting however a person chooses or in whatever ways our "animal instincts" drive us.

Though apparently quite uncommon, a coherent conversation about sexual conduct logically begins with whether we were created by a supreme, supernatural God or whether we evolved "naturally"⁷

from lower animals. If we are merely evolved animals, then we can reasonably "act like the animals we are"⁸ and do whatever we want. But, if humanity was created by the holy God of the Bible,⁹ and if we are going to be judged one day according to His holy will¹⁰ (Acts 17:30-31; 2 Corinthians 5:10), then absolute objective morality exists, and humanity should humbly and fully submit to God's will and not our own—even when (yes, especially when) His will is difficult.¹¹

Many are resistant to God's will for their lives because they want to feel free to express themselves sexually—however and whenever they want. In Charles Bufo's 2022 book titled *24 Reasons to Abandon Christianity*, three reasons deal with sexual matters, including "Christianity's morbid preoccupation with sex."¹² Bufo wrote: "Since its inception, Christianity has had an exceptionally unhealthy fixation on sex, to the exclusion of almost everything else.... This stems from the numerous 'thou shalt not's' relating to sex."¹³ Bufo went on to list 1 Peter 2:11, Galatians 5:19, and Romans 8:6. Then, after quoting 1 Corinthians 7:1,¹⁴ Bufo wrote:

In addition to the misery produced by Christian intrusions into the sex lives of non-Christians, Christianity produces a great deal of misery among its own adherents through its insistence that sex, except the very narrow variety it sanctions, is evil, against God's law. Christianity proscribes sex between unmarried people, sex outside of marriage,...homosexual relations, bestiality,...even "impure" thoughts.¹⁵

Though we would contend that waiting until marriage to have sexual relations and practicing monogamy throughout marriage is extremely enjoyable and rewarding, such an argument is not the point of this article. The thesis of this brief

article is simply that if there is no God, then animal-like sexual desires can logically be fulfilled in any way a human being chooses. However, if an omniscient, omnipotent, eternal, loving, holy, and just Creator exists, and He has revealed His sovereign will about sexual matters to humanity,¹⁶ then objective standards (which, by definition, do not change with human opinions) exist, and humans are expected (by their Creator and Judge) to submit to them.

A person may sincerely *feel* “this way” or “that way,” but such feelings are not an *objective* moral compass. Objective morality transcends the whims of countries and cultures, as well as public and private opinions, whether in this century or in some other. By definition, *objective truth* cannot be changed by anyone’s “personal feelings, prejudices, and interpretations.”¹⁷

FEELINGS, FREEDOM, AND HUMAN FOLLY

FROM as far back as I can remember, I have craved sugar, milk chocolate, and all manner of sweet carbohydrates. I would *love* to eat a dozen Krispy Kreme® doughnuts every day (especially if the alternative is broccoli, cauliflower, and Brussels sprouts). At any given moment (and especially at meal times), I much prefer immediate and unrestrained gratification over self-control. Yet, continual self-indulgence often leads to serious, long-term physical problems. Thus, I frequently find myself not eating nearly as much as I desire (and I’m still several pounds overweight!).

Children may crave revenge for some perceived (or real) wrong committed against them, but good parents do not allow their children’s retaliatory feelings and actions to run rampant. People of all ages can feel irritable and angry about all manner of things, but that doesn’t

mean that God “made them that way” or that He condones continual, childlike, ill-tempered thinking and behavior. Humans from a young age may covet money and material things, and people can choose to act upon such covetous thinking by stealing from others. Yet, such feelings and use of one’s freedom do not prove that such thoughts and actions “came from God” or are morally acceptable to the Moral Law Giver.¹⁸

Similarly, humans are sexual beings with the ability to have sexual feelings and engage in sexual acts. A study of secular and biblical history reveals that people have had all manner of sexual thoughts (and fantasies), many of which have been acted out. Should children be allowed to act upon their sexual desires whenever and however they want? Is there any objective moral code that governs whether children must obey their parents’ wishes, including about sex? Do parents have any real, objective moral right to tell their 11-year-olds or 15-year-olds what they can and can’t do sexually? Are parents cruel if they forbid their children from looking at pornography? Are they unkind for prohibiting their children from having sex? If God does not exist, and objective morality is a mere fantasy, then how can parents “rightly” forbid any sexual actions that their pre-teen or teenage children desire?

If God does not exist, pornography is not a problem, fornication is not wrong, and sexual activity with the same sex is not sinful.

- If there is no God, a married man who longs and lusts for women in addition to (or to the exclusion of) his wife has every right to follow through with his desires if he so chooses. (If not, why not?)
- What if a young woman’s husband is in a terrible car accident that left him paralyzed from below the neck? Surely the wife can rightly find sexual gratification with one or more other individuals? And if she chooses to leave her quadriplegic husband permanently for a man who could fulfill all of her sexual desires, who could say that such an action would be wrong?
- And what about men and women who want more than one spouse? Who says that monogamy should be the standard while polygamy and group marriages are unacceptable?

The list of sexual scenarios could go on and on. And, the list of *opinions* regarding what should be acceptable and what should not be is *extremely* diverse and *completely subjective*, if... there...is...no...God.

A PERSON’S OBJECTIVE PURPOSE

MANY seem unaware of the biblical teaching regarding one’s purpose

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in life. Our purpose is not to chase physical pleasures like animals. Such impulsive pursuits are only “right” if atheism is true. As Charles Darwin wrote in his autobiography: “A man who has no assured and ever present belief in the existence of a personal God or of a future existence with retribution and reward, can have for his rule of life, as far as I can see, *only to follow those impulses and instincts which are the strongest or which seem to him the best ones.*”¹⁹

People tend to look for purpose in hobbies, education, employment, politics, riches, vacations, or conservation. Many seem to have as their life goal to escape old age and death. Still, more seem to have their purpose in life all wrapped up in their sexual feelings and actions with no objective moral law to guide them.

Although God created the beautiful institution of marriage between one man and one woman, the purpose of life is not to get married. Our purpose is not to have sex—whether one time or 10,000 times. Jesus, the only perfect human being Who ever lived (2 Corinthians 5:21; Hebrews 4:15), never got married and thus never had sexual relations. What’s more, the man who wrote nearly half of the New Testament books (the apostle Paul) was not married (1 Corinthians 7:8).

King Solomon foolishly and sinfully accumulated 700 wives and 300 concubines (1 Kings 11:3), yet not one of them could provide him with real, objective meaning in his life. Even though he “had everything” and “experienced it all,”²⁰ Solomon repeatedly stressed the meaninglessness of life “under the sun” (Ecclesiastes 1:9). That is, from a purely naturalistic, earthly perspective where one is searching for abiding happiness in the physical realm, “all is vanity and grasping for the wind” (1:14).

So what is our real, objective purpose in life? Truly, *it is all about*

God. Our purpose is to “know” Him (Philippians 3:10), “trust” Him (Proverbs 3:5-6; John 3:16), “love” Him (Matthew 22:37-39), “follow” Him (Mark 8:34), “fear” Him (Ecclesiastes 12:13-14), “obey” Him (John 14:15; 1 John 5:3), “serve” Him (1 Thessalonians 1:9), and “praise” Him (1 Peter 1:7). We are here to “glorify” Him (1 Corinthians 6:20).

FLEE SEXUAL IMMORALITY

JUST prior to the apostle Paul’s exhortation to the Christians in the sinfully sex-crazed city of Corinth²¹ to “glorify God in your body,” he commanded them to “[f]lee sexual immorality” (1 Corinthians 6:18-20). Some of the Corinthian Christians had already left behind various forms of sexual immorality (e.g., fornication, adultery, and homosexuality—1 Corinthians 6:9-11), while others were in need of repentance (e.g., the man who had his father’s wife—5:1). In order to fulfill our beautifully profound and primary purpose in life (to glorify God and not ourselves), we must be willing (among other things) to leave all forms of sexual immorality behind.

Similar to how Jesus is the *one way* to eternal life (John 14:6), God created *one* beautifully approved way to have sexual relations. At the end of the Creation, after God made Adam and Eve, “God saw everything that He had made, and indeed it was very good” (Genesis 1:31). What’s more, it was good for the first married couple to be together sexually. In fact, God instructed Adam and Eve to “be fruitful and multiply” (1:28). The Bible not only extols sexual relations for reproductive purposes, but God also created a man and a woman with the physical ability to have an enjoyable sexual relationship. The Old Testament book Song of Solomon celebrates the sexual relationship between a man and a

woman. It begins by speaking of the pleasures of kissing (1:2) and proceeds to tell of the enjoyment that two intimate lovers have together. Truly, a scriptural, sexual relationship between a husband and a wife is a good, lovely, and beautiful thing to be enjoyed throughout marriage, if possible. When an eligible man and an eligible woman join together in the bonds of holy matrimony, it is “honorable” and “the bed undefiled” (Hebrews 13:4). The apostle Paul wrote: “Let the husband render to his wife the affection due her, and likewise also the wife to her husband” (1 Corinthians 7:3).

Indeed, “Marriage is honorable among all, and the bed undefiled; *but fornicators and adulterers God will judge*” (Hebrews 13:4). Whether people like it or not, whether people ever come to understand God’s thoughts that underlie His laws on sexual matters (cf. Deuteronomy 29:29; Isaiah 55:8-9), the fact is, the Creator of humanity has repeatedly communicated in the last will and testament of Jesus Christ that sexual desires and actions are to be limited to the marriage bed between a lawful husband and wife (Matthew 19:1-9). Paul wrote:

For this is the will of God, your sanctification: that you should abstain from sexual immorality; that each of you should know how to possess his own vessel in sanctification and honor, not in passion of lust, like the Gentiles who do not know God.... For God did not call us to uncleanness, but in holiness. Therefore he who rejects this does not reject man, but God, who has also given us His Holy Spirit (1 Thessalonians 4:3-8).

CONCLUSION

IF there is no God, then there are no objective standards of any kind for sexual relations (or anything else). We are free to allow our animal-like instincts and passions to

run rampant in thought and deed without restraint. *But*, if God exists and the Bible is His Word, we are subject to a strict sexual moral code.

As immortal beings who are only in this physical world for a short time, we are to “abstain from fleshly lusts which war against the soul” and, instead, “pursue [the] righteousness” of God (1 Peter 2:11; 2 Timothy 2:22). We are to put away such things as lewdness, lusts, and *all* forms of sexual activity outside of a God-approved marriage (Galatians 5:19-21; 1 Corinthians 6:9-11; Romans 1:18-32).

The world, who knows neither God nor His Will, will “think it strange that you do not run with them in the same flood of dissipation, speaking evil of you.” But, the sobering truth is, “[t]hey will give an account to Him who is ready to judge the living and the dead” (1 Peter 4:3-5).

May God help Christians to sincerely follow the pure Prince of Peace and keep ourselves “unspotted from the world” (James 1:27). And, may we simultaneously let God’s light shine through us that we might help precious, misguided souls to give up any and all forms of sexual immorality and submit to the Savior’s will for their lives (Matthew 5:16; 1 Peter 2:11-12).

ENDNOTES

¹ “Morality” (2024), *Merriam-Webster*, <https://www.merriam-webster.com/dictionary/morality>.
² “Moral” (2024), *Merriam-Webster*, <https://www.merriam-webster.com/dictionary/moral>.
³ Outside of mere human opinion.
⁴ Jean-Paul Sartre (1989), “Existentialism is Humanism,” in *Existentialism from Dostoyevsky to Sartre*, ed. Walter Kaufman, trans. Philip Mairet (Meridian Publishing Company), <http://www.marxists.org/reference/archive/sartre/works/exist/sartre.htm>, bracketed item added.
⁵ Ibid.
⁶ William Provine (1988), “Scientists, Face

It! Science and Religion are Incompatible,” *The Scientist*, 2[16]:10, September 5, <http://classic.the-scientist.com/article/display/8667/>.
⁷ In reality, there is nothing “natural” about life coming from non-life nor life evolving into totally different kinds of life (e.g., birds evolving into reptiles or reptiles evolving into mammals, etc.). Evolution’s tree of life defies the scientific Law of Biogenesis and is based upon blind faith.
⁸ Jo Marchant (2008), “We Should Act Like the Animals We Are,” *New Scientist*, 200[2678]:44-45, October 18-24.
⁹ Visit apologeticspress.org for a voluminous amount of evidence for the God of the Bible in article, book, and video formats.
¹⁰ The New Testament (Ephesians 2:11-16; Romans 7:4; Hebrews 8-10).
¹¹ “Submitting” to God’s Will only when things are easy is not genuine submission, but “acting”—going through the motions of “submission” because it’s easy, convenient, socially acceptable, etc. True, trusting obedience to God is most often revealed during *difficult times*.
¹² Charles Bufe (2022), *24 Reasons to Abandon Christianity* (Tucson, AZ: See Sharp Press), ebook pp. 10-11.
¹³ Ibid., p. 169.
¹⁴ Regarding Paul’s statement to the Cor-

inthians that for the unmarried man, “It is good for a man not to have sexual relations with a woman” (ESV).
¹⁵ Bufe, p. 182.
¹⁶ In the Bible, which we contend the evidence indicates is from a Supernatural Source. See Kyle Butt (2022), *Is the Bible God’s Word* (Montgomery, AL: Apologetics Press). See also Dave Miller (2020), *The Bible Is From God: A Sampling of Proofs* (Montgomery, AL: Apologetics Press) and “The Inspiration of the Bible” section of www.apologeticspress.org.
¹⁷ “Objective” (2024), *Merriam-Webster*, <https://www.merriam-webster.com/dictionary/objective>.
¹⁸ Or that the Moral Law Giver is a “Moral Monster” for condemning covetousness and theft.
¹⁹ Charles Darwin (1958), *The Autobiography of Charles Darwin*, ed. Nora Barlow (New York: W.W. Norton), p. 94, emp. added.
²⁰ Read Ecclesiastes 1:16 and 2:1-10.
²¹ The inhabitants of Corinth were so sexually immoral that the verb *korinthiao* (“to Corinthianize” or “act like Corinthians”) meant to commit sexual immorality. See Henry Foster (1974), *The Preacher’s Complete Homiletic Commentary on the Epistles of St. Paul the Apostle to the Corinthians* (Grand Rapids, MI: Baker), pp. 6-7.

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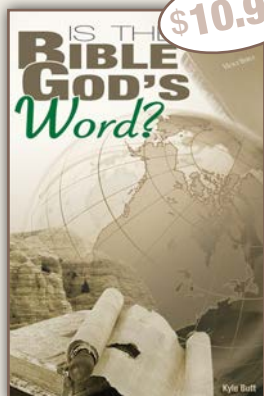
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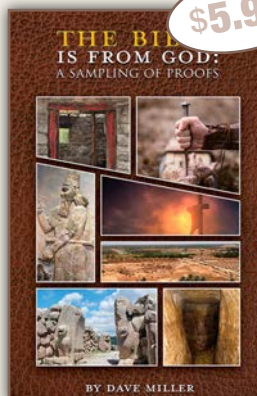


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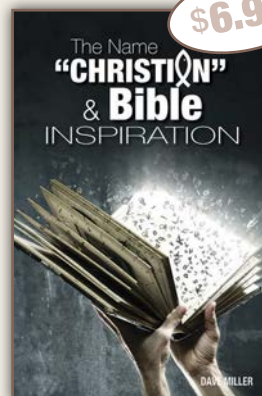
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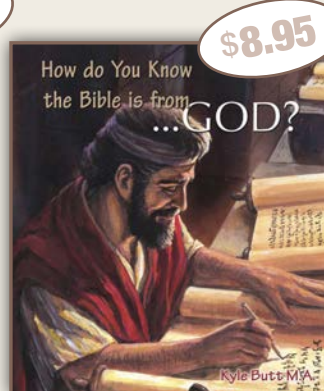
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Refuting the Miller-Urey Experiment

Joshua Kee, M.S.

Article In Brief...



Stanley Miller's experiment in 1953 has been used as a classic experiment showing how life can form out of a pre-biotic soup by passing an electrical current through an inorganic solution. While this experiment produced profound results, Miller made several unwarranted assumptions about his atmospheric conditions and his conclusions contradicted several established laws of science. The atmospheric conditions that he used would not generate the order and complexity required for life to begin. Additionally, his conclusions contradicted the Law of Biogenesis and the Second Law of Thermodynamics. Because of these errors, his work is not valid evidence for how life began.

ON May 15, 1953, *Science* magazine published an article by Stanley L. Miller that transformed the scientific field of origins. This article was titled "A Production of Amino Acids under Possible Primitive Earth Conditions" and described the experiment (designed by graduate student Miller and his advisor, Harold Urey) as attempting to replicate the emergence of life from prebiotic¹ soup. The results of this experiment sparked newspapers to make statements such as "life from non-life." The Miller Experiment results were viewed as an alternative theory to the intelligent design movement and bridged the barriers to the understanding of the origin of life. This experiment also caused an increased interest in stories such as Mary W. Shelley's *Frankenstein*, where dead bodies were resurrected using electricity. Jeffrey L. Bada and Antonio Lazcano said that this experiment "almost overnight transformed the

study of the origin of life into a respectable field of inquiry."² This experiment also introduced a new field of study: prebiotic chemistry. Current biology textbooks still use Miller's experiments as a basis for the origin of life on Earth, describing it as a "famous"³ and "elegant experiment."⁴

WHAT IS LIFE?

BEFORE we consider this experiment about the origin of life, let's consider the definition for "life." Morris, et al. give four essential characteristics for living things: an archive of information, a barrier that separates the living thing from the environment, capacity to regulate cell interiors, and the ability to gather materials and harness energy from the environment.⁵ Urry, et al. gave examples of some of the properties of life: order, evolutionary adaptation, regulation, energy processing, growth and development, response

to the environment, and reproduction.⁶ These characteristics or properties of life must exist together for something to be considered a living organism. The information about how any living organism is constructed is contained inside the organism's cells on strands of DNA (deoxyribonucleic acid) and RNA (ribonucleic acid), which consist of specific arrangements of five nucleic acids: adenine, guanine, cytosine, thymine (found only in DNA) and uracil (found only in RNA). This information is used by the cell to construct and organize proteins, which are made from molecules called amino acids and are arranged in specific sequences and three-dimensional patterns. Proteins are necessary for the structural arrangement of the cell and the many metabolic processes required for life. *Science* magazine attributed the explanation for the origin of this complexity to the discovery by Miller and Urey, specifically the origin of the amino acids that are the basis for the proteins in the cell.⁷

MILLER'S EXPERIMENT

IT was originally supposed that organic compounds, those compounds that contain the element carbon and are found in living organisms (for example, DNA or proteins), were only able to be made, or synthesized, by living organisms themselves. In the same way, inorganic molecules—those molecules that do not contain carbon—were only able to originate from non-living sources. However, in an essay published in *Science* magazine, Bada and Lezcano⁸ state that the scientist who first reported synthesizing a simple organic compound from inorganic molecules was F. Wöhler in 1828.⁹ Bada and Lezcano also stated that, in 1913, W. Löb reported that he had synthesized the first simple amino acids using wet formamide, a silent discharge

of electricity, and ultraviolet light. In 1950, Melvin Calvin attempted to synthesize organic compounds in oxidizing atmospheric conditions.¹⁰ He was able to synthesize a high volume of formic acid,¹¹ however, he demonstrated the necessity of running these experiments in a reducing atmosphere.¹² In 1951, Harold Urey presented his concept of a prebiotic, reducing atmosphere from his studies of the origin of the Universe. In 1953, Miller,¹³ a graduate student at the University of Chicago, developed an apparatus to form basic organic compounds. He used CH₄ (methane), NH₃ (ammonia), H₂O (water), and H₂ (hydrogen) and circulated them through an electrical discharge for a week. After the experiment was run, he added HgCl₂ (mercuric chloride) to prevent the growth of living organisms, distilled the results, and positively identified the amino acids glycine, α -alanine, β -alanine and less certainly identified some other amino acids. These amino acids provide part of the foundation for proteins, the building blocks of life. Later analysis of samples from Miller's work revealed over 40 different amino acids and amines.¹⁴ If the conclusions from Miller's experiment violated established laws of science, however, or if he based the experiment upon faulty assumptions, then his experiment is invalid evidence for abiogenesis.¹⁵ While Miller made a profound discovery, the unsubstantiated conclusion that he and others drew from his work ignored established science and made several assumptions that cannot be supported.

CONTRADICTION OF SCIENTIFIC LAWS

THE purpose, conclusion, and application of Miller's experiment contradicted firmly established laws of science: theories that have "been tested by and [are] consistent with generations of data."¹⁶ Even now, more than half

a century after Miller's experiment, these are still considered law. One is the Law of Biogenesis: the fact that life cannot come from non-life—there must be pre-existing life. This thought was expressed by Rudolf Virchow in 1855: "*Omnis cellula e cellula*," or, "Every cell from a cell."¹⁷ The Law of Biogenesis is based on work by Francesco Redi, Lazzaro Spallanzani, and Louis Pasteur. The hypothesis that Miller was testing was in contradiction to this already established Law and therefore, as expected, the experiment failed to support his hypothesis. This is a law based upon exclusion: abiogenesis has never been observed. Scientists do not know exactly how life could have come about from non-life. They have never replicated it in a laboratory. They have never seen signs of abiogenesis inside or outside the lab. So, there is no evidence for life coming from anything other than life. Does Miller's experiment nullify the Law of Biogenesis? No, it only strengthens it. Even in the orderly and precise conditions found in a laboratory, scientists have not been able to create life from non-life, and yet it is assumed by naturalists that it happened in the disorganized prebiotic world.

Another scientific law that is ignored by Miller's experiment is the Second Law of Thermodynamics. This law states that, "in any chemical or physical process, the entropy of the Universe tends to increase."¹⁸ To put it another way, the Universe is continuing to become more disorganized. An analogy of this scientific law is a tornado going through a plane graveyard: instead of making new planes, it will cause greater damage to the junked planes. The objective of Miller's experiment was to provide evidence that the Universe, at one point, went from disorder (prebiotic soup) to order (amino acids, DNA, then life), which would seem to break this Law. While it is

true that, in an open system (like Earth), useful energy can be added from without, allowing entropy to be countered locally in some cases, that energy has to be of such a nature that it can, in fact, counter entropy in the particular system under consideration (rather than increasing entropy). No evidence has been presented to substantiate the conjecture that entropy was countered at the molecular and genetic level at the beginning of life (or each of the evolutionary jumps thereafter).¹⁹ Instead, genetic entropy is the rule.²⁰ The contradiction of Miller's results with these two scientific laws were not addressed.

FALSE CONCLUSIONS AND ASSUMPTIONS

MILLER addressed the hypothesis of early formation of organic compounds that would serve as the basis of life. However, it must be understood that his experiment resulted in forming only **some** of the clay to make the house of life. Amino acids are the foundation for proteins, the building blocks of life. The amino acids must be combined in a precise way and be able to replicate themselves perfectly, following the genetic code of DNA. The DNA is transcribed into RNA, which is translated into a protein. Some of the proteins are required for the maintenance and replication of DNA. You cannot have functional DNA without proteins, nor vice versa.

Irreducible complexity is a concept that has been suggested by Michael Behe, a professor of biochemistry at Lehigh University. It is the idea that a living organism must have a minimum number of working processes. If the organism was ever missing one of these processes, or if one was faulty, the organism could not live.²¹ If the amino acids did not combine in the right order

(and, therefore, did not produce that minimum number of working processes), then they would not be able to continue replicating themselves. Miller addressed this concept in a response to Sidney W. Fox's letter to *Science* magazine in 1959 by saying, "it would be convenient for the investigator if the primitive pathways followed the present ones, but surely this is not necessary.... If we choose the pathway of the more primitive organism, then why should not even more primitive organisms have used pathways different from these?"²² Miller is implying that there are reducibly complex organisms with simpler and simpler metabolic pathways until you just have a string of random amino acids. These reducibly complex organisms and simpler metabolic pathways are ideas conceived only in the human mind, and **do not have any scientific evidence for their existence**. So, even though Miller's experiment resulted in some of the building blocks (amino acids) for the building of life (proteins), his experiment did not create life itself, nor show how it could have evolved from the random amino acids.

Additionally, the amino acids made in Miller's apparatus were a racemic, or equal proportions, mixture of right- and left-handed amino acids, specific orientations that are mirror images of each other.²³ Miller and Urey bring this to light in their defense against bacterial contamination. However, life is comprised almost entirely of left-handed amino acids.²⁴ The results of this experiment show that abiotic synthesis of organic molecules does not produce the necessary configuration for life, nor does it explain how life is comprised mainly of only one orientation of amino acids.

A different problem with Miller's experiment is the assumption that was made based on the uniformitarian²⁵ concept of the Universe.

Miller and Urey co-authored an article that brought out several uniformitarian assumptions that they made—assumptions that would directly affect the plausibility of the abiogenesis hypothesis. For instance, they said, "there is no reason to suppose that the same temperature [we experience on Earth today—JK] was not present in the past."²⁶ Looking at the geological record, however, we find that there have been cycles of cooling and warming. The varying temperatures would affect the composition of the prebiotic atmosphere as well as the stability of any organic molecules formed. The assumption of uniformitarian conditions cannot be validated.

Miller and Urey further attempted to explain the current buffer systems of the ocean to show that the pH level of the ocean in the past was suitable for life to originate. The pH of the ocean at the time is argued to have been 8, making it ideal for the stability of ammonia that allows for hydrogen to escape the atmosphere, which allows for a reducing atmosphere. They present their calculations as sound, yet proceed to admit that they are invalid:

It is evident that the calculations do not have a quantitative validity because of many uncertainties with respect to temperature, the processes by which equilibrium could be approached, the atmospheric level at which such processes would be effective, and the partial pressure of hydrogen required to provide the necessary rate of escape. In view of these uncertainties, further calculations are unprofitable at the present time. However, we can conclude from this discussion that a reducing atmosphere containing low partial pressures of hydrogen and ammonia and a moderate pressure of methane and nitrogen constitutes a reasonable atmosphere for the primitive earth. That this was

the case is not proved by our arguments....²⁷

Miller and Urey conclude that nothing can be determined about the oceanic and atmospheric conditions because of a lack of evidence.

A final problem with Miller's experiment is the composition of the atmospheric conditions that he used. Miller used methane, ammonia, water, and hydrogen as the assumed atmospheric composition when life originated, based on the works of Urey and Oparin. Miller and Urey said that only by using a reducing atmosphere could amino acids be synthesized. They affirmed that, "if the conditions were oxidizing, no amino acids were synthesized."²⁸ Miller and Urey also concluded that oxygen was not necessary to the early atmosphere because it is not essential for life. Regarding the experimental synthesis of life in an oxidizing atmosphere, they said that the experiments could "be interpreted to mean that it would not have been possible to synthesize organic compounds nonbiologically as long as oxidizing conditions were present on the earth."²⁹ So, was the prebiotic atmosphere a reducing atmosphere or an oxidizing atmosphere?

In their book, *The Origins of Life on Earth*, Stanley L. Miller and Leslie E. Orgel described their reasoning behind having a prebiotic, reducing atmosphere: "We believe that there must have been a period when the earth's atmosphere was reducing, because the synthesis of compounds of biological interest takes place only under reducing conditions."³⁰ They continue to say that there is some geological and geophysical evidence that suggests that the early atmosphere was reducing and conclude, "Fortunately, everyone agrees that although the primitive atmosphere may not have been strongly reducing, it certainly did not contain more than a trace of

molecular oxygen.”³¹ Their circular reasoning is that life originated in a reducing atmosphere and that we know there is a reducing atmosphere because life had to originate in it. However, Philip H. Abelson of the Geophysical Laboratory asked, and answered, “What is the evidence for a primitive methane-ammonia atmosphere on earth? The answer is that there is *no* evidence for it, but much against it.”³² He references Rubey, a member of the U.S. Geological Survey, in saying that volcanic gases, which are thought to have been abundant when life originated, would be similar to the composition of the atmosphere near the Earth: water, carbon dioxide, and nitrogen. Abelson continues, stating that the early atmosphere was reducing, but not to the extent to which Miller believed. It is thought that there was carbon monoxide (oxidizing agent) from the outgassing that was transformed into formate.³³ However, the partial pressure of the carbon monoxide would still be high enough to interact with any amino acids that were developed. So, there were oxidizing agents in the prebiotic air. However, we cannot know for certain what the partial pressure was in the early atmosphere. Jonathan Wells, a molecular and cell biologist with a doctorate from the University of California at Berkeley, was quoted in an interview with Lee Strobel discussing the effects of the Miller experiment using the atmosphere presumed now to be the prebiotic atmosphere (carbon dioxide, nitrogen, and water vapor). Wells stated that the results of such an atmosphere would be formaldehyde and cyanide: a poison and embalming fluid.³⁴ The end result is not anything like what Miller proposed.

CONCLUSION

DOES the Miller experiment show that life can come from non-life? No, it only shows that some of the basic building blocks of life can be made in a specifically designed experimental apparatus. The evidence is too great against the assumptions made in Miller’s experiment. For Miller and Urey to describe their own work as uncertain on many levels, unproven by their arguments, and unprofitable to continue studying, it establishes the truth that there is not a reason to believe the validity or soundness of Miller’s proposition. Since Miller’s experiment proposed the violation of established laws of science and was based upon faulty assumptions, his experiment is invalid evidence for abiogenesis. The rational conclusion from the evidence is still as clear as it was before the Miller-Urey Experiment: the existence of life demands a Creator.

ENDNOTES

- ¹ Prebiotic: “Of or relating to the conditions prevailing on earth before the appearance of living things”—*The American Heritage Medical Dictionary* (2022), <https://ahdictionary.com/word/search.html?q=prebiological>.
- ² Jeffrey L. Bada and Antonio Lazcano (2003), “Perceptions of Science: Prebiotic Soup—Revisiting the Miller Experiment,” *Science*, 300[5620]:745-746.
- ³ T.W. Graham Solomons and Craig B. Fryhle (2011), *Organic Chemistry* (Hoboken, NJ: Wiley Publishing Company), 10th edition, p. 30.
- ⁴ James Morris, et al. (2019), *Biology: How Life Works* (New York: MacMillan Learning), p. 45.
- ⁵ *Ibid.*, p. 25.
- ⁶ Lisa A. Urry, et al. (2014), *Biology* (Hoboken, NJ: Pearson Education), p. 3.
- ⁷ Bada and Lazcano, p. 746.
- ⁸ *Ibid.*, p. 745.
- ⁹ Friedrich Wöhler (1828), “Ueber Kunstliche Bildung Des Harnstoffs,” *Annalen Der Physik Und Chemie*, 88[2]:253-256.
- ¹⁰ Oxidizing atmospheric conditions: current atmospheric conditions, containing free oxygen and hydroxide ions.
- ¹¹ Formic acid: “a colourless, corrosive, fuming liquid with a pungent smell...Formula: HCOOH” (W.G. Hale, V.A. Saunders, and J.P. Margham (2005), *Collins Dictionary of*

Biology (London: Collins), 3rd edition.

- ¹² Reducing atmosphere: an atmosphere with a lessened amount of oxygen, or other oxidizing gases, and contains a higher amount of reducing gases, such as hydrogen and carbon monoxide. This is different from the oxidizing atmosphere in the world today.
- ¹³ Stanley L. Miller (1953), “A Production of Amino Acids under Possible Primitive Earth Conditions,” *Science*, 117[3046]:528-529.
- ¹⁴ Jeffrey L. Bada (2013), “New insights into prebiotic chemistry from Stanley Miller’s spark discharge experiments,” *Chemical Society Reviews*, 42:2186.
- ¹⁵ Abiogenesis: “The supposed development of living organisms from nonliving matter”—*The American Heritage Medical Dictionary* (2022), <https://ahdictionary.com/word/search.html?q=abiogenesis>.
- ¹⁶ Jay L. Wile and Marilyn F. Durnell (2002), *Exploring Creation with Biology* (Cincinnati, OH: Apologia Educational Ministries, Inc.), p. 559.
- ¹⁷ Urry, et al., p. 234.
- ¹⁸ David L. Nelson and Michael M. Cox (2008), *Principles of Biochemistry* (New York: W.H. Freeman), 5th edition, p. G-14.
- ¹⁹ Jeff Miller (2013), “Can’t Order Come from Disorder Due to the Sun?” *Reason & Revelation*, 34[2]:22-23.
- ²⁰ Jeff Miller (2014), “God and the Laws of Science: Genetics vs. Evolution (Part 2),” *Reason & Revelation*, 34[2]:14-22.
- ²¹ Michael J. Behe (1996), *Darwin’s Black Box: The Biochemical Challenge to Evolution* (New York: Free Press), p. 39.
- ²² Sidney W. Fox, et al. (1959), “Origin of Life,” *Science*, 130[3389]:1624.
- ²³ Stanley L. Miller and Harold C. Urey (1959), “Organic Compound Synthesis on the Primitive Earth,” *Science*, 130[3370]:248.
- ²⁴ Solomons and Fryhle (2011), p. 8.
- ²⁵ Uniformitarianism: “Principle that geologic processes operating at present are the same processes that operated in the past”—Charles C. Plummer, Diane H. Carlson, and David McGeary (2007), *Physical Geology* (New York: McGraw-Hill), 11th edition, p. G-10.
- ²⁶ Miller and Urey, p. 246.
- ²⁷ *Ibid.*, p. 247.
- ²⁸ *Ibid.*, p. 248.
- ²⁹ *Ibid.*, p. 245.
- ³⁰ Stanley L. Miller and Leslie E. Orgel (1974), *The Origins of Life on Earth* (Englewood Cliffs, NJ: Prentice-Hall, Inc.), p. 33.
- ³¹ *Ibid.*
- ³² P.H. Abelson (1966), “Chemical Events on the Primitive Earth,” *Proceedings of the National Academy of Sciences*, 55[6]:1365, italics in orig.
- ³³ *Ibid.*, p. 1367.
- ³⁴ Lee Strobel (2004), *The Case for a Creator* (Grand Rapids, MI: Zondervan Publishing House), pp. 37-38.



NOTE FROM

The Editor



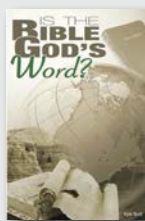
Is the Bible From God?—AP Material for All Ages

When I was a teenager, a friend and I asked a kind woman if she would be interested in having a Bible study. We set up a particular time and arrived at her house “ready...to give an answer” for our hope of salvation through Jesus Christ. I had prepared for this study. I “knew” where I was going with this study (or so I thought). I was ready to talk to this hospitable woman about sin, the Savior, and how to become saved from the eternal consequences of sin by the Savior. But (as is often the case), things did not go as planned.

As we sat down at the kitchen table, only a few minutes into the study, the woman looked right at me and said, “But I don’t believe that the Bible is the Word of God.” Though I was prepared to talk to this precious lost soul about the fundamentals of God’s plan of salvation and about Jesus’ Church, I was woefully unprepared for a much more fundamental (and vitally important) discussion: “How do I know that *God* said these things?”

A man can memorize the entire Bible. A woman can give a biblical answer to every question she’s asked. However, neither person is ready to defend the Gospel unless he or she can give *evidence* and *logical reasons* why people should trust that the Bible is the inspired Word of God.

According to a May 2022 Gallup poll, “A record-low 20% of Americans now say the Bible is the



literal word of God, down 24% the last time the question was asked in 2017, and half of what it was... in 1980 and 1984. Meanwhile, a new high of 29% say the Bible is a collection of ‘fables, legends, history and moral precepts recorded by man.’”¹

Friends, the teaching of the fundamental evidence for the Christian faith, including especially investigating the evidence for the divine origin of the Bible, is vital to honest and healthy personal spiritual growth and evangelism. If AP can assist you in your search for and defense of the Bible, visit apologeticspress.org or check out one or more of our books (for all ages) on Bible inspiration.

¹ Frank Newport (2022), “Few in U.S. Now See Bible as Literal Word of God,” July 6, <https://news.gallup.com/poll/394262/fewer-bible-literal-word-god.aspx>.

Eric Lyons

See Center Spread for More Details